

Please amend claim 27 (amended) as follows:

27. (Twice Amended) An apparatus for inspecting a coin thrown into a machine, comprising:

an exciting coil arranged in the vicinity of one side of a coin passage inclined at a predetermined angle so that two magnetic poles thereof face the coin passage;

two receiving coils having substantially identical characteristics and arranged in the vicinity of said one side of said coin passage so that said receiving coils are electromagnetically coupled with said exciting coil;

oscillation circuit means arranged with said exciting coil as an oscillation element;

first detector circuit means coupled to said oscillation circuit means for detecting at least one of amplitude, phase and frequency of an oscillation voltage in said exciting coil;

bridge circuit means arranged to include said receiving coils;

differential amplifier means connected to said bridge circuit means;

second detector circuit means for detecting an electromotive force signal influenced by a reactive magnetic field caused by eddy currents induced on a surface of the thrown coin an output of said second detector circuit means being connected to said differential amplifier means; and

discriminating means connected to said first and second detector circuit means to discriminate a feature of said thrown coin based upon a combination of an output of said second detector circuit means to determine a surface pattern of the thrown coin and an output of said first detector circuit means to determine at least one of amplitude, phase and frequency of said oscillation voltage, and output a result of the discrimination.

REMARKS

Applicant has amended claims 1, 6, 11, 16, and 27. Applicant respectfully submits that these amendments to the claims are supported by the application as originally filed and do not contain any new matter. In addition, Applicant respectfully submits that these amendmens to the claims merely clarify the language and do not raise any new issues which would require further consideration and/or search. Therefore, the Final Office Action will be discussed in terms of the claims as amended.

The Examiner has rejected claims 1-27 under 35 USC 102 as being anticipated by Martin et al., stating that Martin et al. discloses each and every element of Applicant's invention.

In reply thereto, Applicant would like to incorporate by reference his comments to the same rejection in Applicant's responsive communication filed on January 29, 2002. In addition, Applicant would like to again point out that Martin et al. merely discloses the prior art discussed in the Background of the Invention section of Applicant's application and in particular respectfully submits that in Martin et al. one of the material, diameter or thickness of a coin thrown is determined using a plurality of frequency components by exciting a plurality of induction coils at different frequencies and detecting the changes of the frequencies of the induction coils when the coins pass by the induction coils (see Fig. 2D and 11A of Martin et al.). Contrary to Martin et al., in Applicant's invention the authenticity of a thrown coin is discriminated by a combination of an electromotive force signal detected by the receiving coil and at least one of amplitude, frequency and phase of an oscillation voltage of the exciting coil. In this way, the authenticity of the coin thrown in Applicant's invention is discriminated by detecting the surface irregularity pattern of the thrown coin based on the electromotive force produced in the receiving coils and at least one of a detected material, diameter or thickness of the thrown coin. Applicant respectfully submits that Martin et al. only shows part of Applicant's invention and the utilization of the connecting word "and" requires that for a reference to be anticipatory it must show both the elements which appear on both sides of the "and" (see Brown v. Airproducts & Chemicals, Inc., Fed Cir. No. 00-1152, September 18, 2001).

In addition, Applicant's further review of Martin et al. indicates that the induction coil constituted by coils 1142a and 1142b and the windings 1144a and 1144b serve as the exciting coils and also as the detecting coils (see col. 3, lines 45-col. 54, line 20 and Fig. 11A). Accordingly, Applicant respectfully submits that the detection coil and the exciting coil in Martin et al. are not separate and are in fact a single coil.

In view of the above, therefore, Applicant respectfully submits that Martin et al. does not disclose each and every element of Applicant's invention as claimed by Applicant's claims 1-27. Therefore, Applicant respectfully submits that Martin et al. does not anticipate Applicant's invention as claimed by claims 1-27 and claims 1-27 are not anticipated thereby.

The Examiner has rejected claims 1-27 under 35 USC 103 as being obvious over Martin et al. in view of Rawics-Szczerbo et al., stating that Martin et al. discloses each and every

element of Applicant's invention, but does not expressly disclose using eddy currents to detect surface patterns of the coins; Rawics-Szczerbo et al. discloses using eddy currents to detect surface patterns of the coins; and it would have been obvious to modify Martin et al. in view of Rawics-Szczerbo et al.

In reply thereto, Applicant would like to incorporate by reference his comments concerning Applicant's invention and Martin et al. In addition, Applicant has carefully reviewed Rawics-Szczerbo et al. and respectfully submits that it does not disclose the use of eddy current for detecting the surface irregularity pattern of the coin. In particular, in Applicant's invention the eddy currents detected are only dependent upon the surface pattern embossed in the coin. In contrast thereto, in Rawics-Szczerbo et al. the frequency and amplitude of the oscillation produced on the line 15 deviates as a result of the change in impedance as the coin passes through. The change in impedance occurs as a result of the skin effect type eddy currents being induced by the coil in the coin and the magnitude of the frequency and amplitude deviations are dependent upon several factors, including the relative sizes of the coil and the coin, the coin diameter and thickness, the metal from which the coin is made and the surface pattern embossed in the coin (see col. 3, lines 61-col. 4, line 10). Accordingly, and as previously stated, Applicant respectfully submits that Rawics-Szczerbo et al. does not disclose the use of eddy current for detecting the surface irregularity pattern of the coin.

In view of the above, therefore, Applicant respectfully submits that the combination suggested by the Examiner is not Applicant's invention and claims 1-27 are not obvious over Martin et al. in view of Rawics-Szczerbo et al.

The Examiner has provisionally rejected claims 1-27 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of copending application No. 09/528,283 in view of Martin et al. and also has rejected claims 1-27 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 6,325,197 in view of Martin et al.

In response to the provisional and the regular obviousness-type double patenting rejections, submitted herewith are terminal disclaimers. Accordingly, Applicant respectfully submits that in light of the filing of these terminal disclaimers, the provisional rejection under the judicially created doctrine of obviousness-type double patenting and the regular rejection under

the judicially created doctrine of obviousness-type double patenting of claims 1-27 has been overcome. Please charge Deposit Account 11-1445 in the amount of \$220.00 as the fee.

Applicant further respectfully and retroactively requests a one-month extension of time to respond to the Final Office Action. Please charge Deposit Account No. 11-1445 in the amount of \$110.00 as the fee.

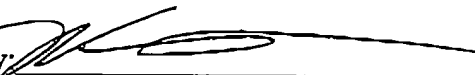
Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In view of the above, therefore, it is respectfully requested that this Rule 116 Amendment be entered, favorably considered and the case passed to issue.

Please charge any additional costs incurred by or in order to implement this Amendment or any additional required requests for extensions of time to KODA AND ANDROLIA DEPOSIT ACCOUNT NO. 11-1445.

Respectfully submitted,

KODA & ANDROLIA

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William L. Androlia

Name

7/12/2002

Signature

Date

Application No. 09/528,282

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 1 (amended) has been amended as follows:

1. (Twice Amended) A method of inspecting a coin thrown into a machine, comprising the steps of:

(a) arranging an exciting coil and a receiving coil in the vicinity of one side of a coin passage so that said exciting coil and said receiving coil are electromagnetically coupled with each other;

(b) exciting said exciting coil to oscillate at such a frequency that an electromotive force influenced by a reactive magnetic field caused by eddy current induced on a surface of the thrown coin when the coin passes through an electromagnetic field produced by said exciting coil is detected by said receiving coil to determine a surface pattern of the thrown coin; and

(c) discriminating authenticity of the thrown coin based on a combination of an electromotive force signal detected by said receiving coil and at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil[, and an electromotive force signal detected by said receiving coil].

Claim 6 (amended) has been amended as follows:

6. (Twice Amended) A method of inspecting a coin thrown into a machine, comprising the steps of:

(a) arranging an exciting coil in the vicinity of one side of a coin passage inclined at a predetermined angle so that magnetic poles thereof face the coin passage;

(b) arranging two receiving coils with substantially identical characteristics in the vicinity of said one side of said coin passage so that said receiving coils are electromagnetically coupled with said exciting coil;

(c) exciting said exciting coil at a predetermined frequency to produce an electromagnetic field; and

(d) discriminating authenticity of the thrown coin based on a combination of an electromotive force signal influenced by a reactive magnetic field caused by eddy current induced on a surface of the thrown coin and detected by said two receiving coils and at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil[, and an electromotive force signal influenced by a reactive magnetic field caused by eddy currents induced on a surface of the thrown coin when the coin passes through said electromagnetic field and detected by said two receiving coils to determine a surface pattern of the thrown coin].

Claim 11 (amended) has been amended as follows:

11. (Twice Amended) An apparatus for inspecting a coin thrown into a machine, comprising:

an exciting coil arranged in the vicinity of one side of a coin passage;

a receiving coil arranged in the vicinity of said one side of said coin passage so as to be electromagnetically coupled with said exciting coil;

oscillation means for exciting and oscillating said exciting coil at a predetermined frequency to produce an electromagnetic field;

first detecting means for detecting at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil;

second detecting means for detecting an electromotive force signal influenced by a reactive magnetic field caused by eddy currents induced on a surface of the thrown coin when the coin passes through said electromagnetic field produced by said exciting coil and which is generated in said receiving coil; and

discriminating means for discriminating authenticity of the thrown coin based on detection outputs from said first and second detecting means;

whereby authenticity of the thrown coin is discriminated based on a combination of an electromotive force signal detected by said receiving coil to determine a surface pattern of the thrown coin and at least one of amplitude, frequency and phase of the oscillation voltage of said exciting coil[, and an electromotive force signal detected by said receiving coil to determine a surface pattern of the thrown coin].

Claim 16 (amended) has been amended as follows:

16. (Twice Amended) An apparatus for inspecting a coin thrown into a machine, comprising:

an exciting coil arranged in the vicinity of one side of a coin passage inclined at a predetermined angle so that magnetic poles thereof face the coin passage;

two receiving coils having substantially identical characteristics and arranged in the vicinity of said one side of said coin passage so that said receiving coils are electromagnetically coupled with said exciting coil;

oscillation means for exciting and oscillating said exciting coil at a predetermined frequency to produce an electromagnetic field;

first detecting means for detecting at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil;

second detecting means for detecting an electromotive force signal influenced by a reactive magnetic field caused by eddy currents induced on a surface of the thrown coin when the coin passes through said electromagnetic field and which is generated in said two receiving coils; and

discriminating means for discriminating authenticity of the thrown coin based on detection outputs from said first and second detecting means; and

whereby authenticity of the thrown coin is discriminated based on a combination of an electromotive force signal detected by said receiving coil to determine a surface pattern of the thrown coin and at least one of amplitude, frequency and phase of the oscillation voltage of said exciting coils[, and an electromotive force signal detected by said receiving coil to determine a surface pattern of the thrown coin].

Claim 27 (amended) has been amended as follows:

27. (Twice Amended) An apparatus for inspecting a coin thrown into a machine, comprising:

an exciting coil arranged in the vicinity of one side of a coin passage inclined at a predetermined angle so that two magnetic poles thereof face the coin passage;

two receiving coils having substantially identical characteristics and arranged in the vicinity of said one side of said coin passage so that said receiving coils are electromagnetically coupled with said exciting coil;

oscillation circuit means arranged with said exciting coil as an oscillation element;
first detector circuit means coupled to said oscillation circuit means for detecting at least one of amplitude, phase and frequency of an oscillation voltage in said exciting coil;
bridge circuit means arranged to include said receiving coils;
differential amplifier means connected to said bridge circuit means;
second detector circuit means for detecting an electromotive force signal influenced by a reactive magnetic field caused by eddy currents induced on a surface of the thrown coin an output of said second detector circuit means being connected to said differential amplifier means;
and

discriminating means connected to said first and second detector circuit means to discriminate a [value] feature of said thrown coin based upon a combination of an output of said second detector circuit means to determine a surface pattern of the thrown coin and an output of said first detector circuit means to determine at least one of amplitude, phase and frequency of said oscillation voltage [and a surface pattern of the thrown coin from outputs of said first and second detector circuit means when the thrown coin acts in said electromagnetic field], and output a result of the discrimination.